

What is claimed is:

1. An apparatus comprising a structure sized and configured for implantation in tissue within a pharyngeal wall, the structure including a region sized
5 and configured to accommodate fixation of the structure to at least one vertebra.

2. An apparatus comprising a structure sized and configured for implantation in tissue within a tongue and/or vallecula to fixate and/or brace tissue along a
10 pharyngeal conduit.

3. An apparatus according to claim 1 or 2, wherein the structure comprises a plastic material, and/or a metal material, and/or a fabric material, and/or a ceramic material, or a combination thereof.

15 4. An apparatus according to claim 1 or 2, wherein the structure comprises a static material.

5. An apparatus according to claim 1 or 2, wherein the structure comprises a dynamic material.

6. An apparatus according to claim 1 or 2,
20 wherein the structure comprises a pre-shaped material.

7. An apparatus according to claim 1 or 2, wherein the structure comprises a material having a spring-like mechanical property.

8. An apparatus according to claim 1 or 2,
25 wherein the structure comprises a material having an elastic mechanical property.

9. An apparatus according to claim 1 or 2, wherein the structure includes at least one ferromagnetic material.

30 10. An apparatus according to claim 1 or 2, wherein the structure comprises a shape memory material.

11. An apparatus according to claim 1 or 2, wherein the structure comprises a shape memory ferromagnetic material.

35 12. An apparatus according to claim 1 or 2,

wherein the structure comprises a thermal shape memory material.

13. An apparatus according to claim 1 or 2,
wherein the structure comprises a material that assumes a
5 desired mechanical condition in response to exposure to
an activation force.

14. An apparatus according to claim 13,
wherein the activation force includes a magnetic field,
or temperature condition, or electrical energy, or
10 electromagnetic energy, or a combination thereof.

15. An apparatus according to claim 1 or 2,
wherein the structure includes at least one hinge point.

16. An apparatus according to claim 1 or 2,
wherein the structure comprises a material implanted by
15 injection.

17. An apparatus according to claim 1,
wherein the region accommodates a bone screw.

18. An apparatus according to claim 1,
wherein the region accommodates an adhesive and/or
20 cement.

19. An apparatus according to claim 2,
wherein the structure includes a region that accommodates
an adhesive and/or cement.

20. An apparatus according to claim 1,
25 wherein the structure includes a material that braces
tissue in the pharyngeal wall against collapse.

21. An apparatus according to claim 1 wherein
the structure includes a material that fixates tissue in
the pharyngeal wall against collapse.

22. An apparatus according to claim 1,
30 wherein the structure braces tissue in the pharyngeal
wall against collapse.

23. An apparatus according to claim 1,
wherein the structure fixates tissue in the pharyngeal
35 wall against collapse.

24. A system comprising at least two apparatuses, at least one of the apparatuses comprising an apparatus as defined in claim 1 or 2.

5 25. A system according to claim 24, wherein at least two of the apparatuses comprise an apparatus as defined in claim 1 or 2.

26. A system comprising at least two apparatuses, at least one of the apparatuses comprising a structure sized and configured for
10 implantation in tissue within a pharyngeal wall, the structure including a region sized and configured to accommodate fixation of the structure to at least one vertebra, and at least another one of the apparatuses comprising a structure sized and configured for
15 implantation in tissue within a tongue and/or vallecula to fixate and/or brace tissue along a pharyngeal conduit.

27. A system according to claim 26, wherein at least two apparatuses share a common fixation point to a vertebra.

20 28. A method for implanting an apparatus in a pharyngeal wall comprising the steps of

providing at least one apparatus as defined in claim 1, and

25 implanting the apparatus in a pharyngeal wall including a fixation step in which the apparatus is secured to at least one vertebra.

29. A method for implanting an apparatus in a tongue and/or vallecula comprising the steps of

30 providing at least one apparatus as defined in claim 2, and

implanting the apparatus in a tongue and/or vallecula.

30. An apparatus to brace or fixate tissue in targeted pharyngeal structures and/or individual anatomic
35 components within the pharyngeal conduit comprising a

material including one or more liquid components that is injected into tissue as a liquid or slurry and that sets in situ to create a non-liquid mechanical implant structure.

5 31. A system comprising at least two apparatuses, at least one of the apparatuses comprising an apparatus as defined in claim 30.

 32. A method for implanting an apparatus in targeted pharyngeal structures and/or individual anatomic
10 components within the pharyngeal conduit comprising the steps of

 providing at least one apparatus as defined in claim 30, and

 injecting the apparatus in targeted pharyngeal
15 structures and/or individual anatomic components within the pharyngeal conduit.

 33. An apparatus to brace or fixate tissue in targeted pharyngeal structures and/or individual anatomic components within the pharyngeal conduit comprising a
20 kinetic structure sized and configured with a desired shape by virtue of magnetic forces that provide magnetic field resistance to shape change.

 34. An apparatus according to claim 33, wherein the kinetic structure is selectively activated to
25 assume the desired shape.

 35. An apparatus according to claim 33, wherein the structure includes a ferromagnetic material mounted on a carrier.

 36. An apparatus according to claim 35, wherein the carrier comprises a plastic material, and/or
30 a metal material, and/or a fabric material, and/or a ceramic material, or a combination thereof.

 37. A method for implanting an apparatus to brace or fixate tissue in targeted pharyngeal structures
35 and/or individual anatomic components within the

pharyngeal conduit comprising the steps of providing at least one apparatus as defined in claim 33, and implanting the apparatus.

38. An apparatus to brace or fixate tissue in
5 targeted pharyngeal structures and/or individual anatomic components within the pharyngeal conduit comprising a kinetic structure including a shape memory ferromagnetic material that provides resistance to shape change.

39. An apparatus according to claim 38,
10 wherein the shape memory ferromagnetic material is mounted on a carrier.

40. An apparatus according to claim 39,
wherein the carrier comprises a plastic material, and/or a metal material, and/or a fabric material, and/or a
15 ceramic material, or a combination thereof.

41. A method for implanting an apparatus to brace or fixate tissue in targeted pharyngeal structures and/or individual anatomic components within the pharyngeal conduit comprising the steps of providing at
20 least one apparatus as defined in claim 38, and implanting the apparatus.

42. A Apparatus to brace or fixate tissue in targeted pharyngeal structures and/or individual anatomic components within the pharyngeal conduit comprising a
25 chamber sized and configured to be located outside of the pharyngeal conduit and to hold a pressure that is less than atmospheric pressure.

43. An apparatus according to claim 42,
wherein the chamber is sized and configured to hold a pressure that is less than a minimum pressure condition experienced in the pharyngeal conduit during a
30 respiration cycle.

44. An apparatus according to claim 42,
wherein the chamber is sized and configured to be worn
35 about a neck.

45. A method of brace or fixate tissue in targeted pharyngeal structures and/or individual anatomic components within the pharyngeal conduit comprising the steps of providing an apparatus as defined in claim 42,
5 and locating the apparatus outside the pharyngeal conduit.

46. A method of implanting an apparatus in a pharyngeal wall comprising the steps of
providing an apparatus as defined in claim 1,
10 creating an incision to expose an anterior aspect of a cervical vertebra,
inserting the apparatus through the incision, which is then tunneled submucosally along a pharyngeal wall into a desired orientation,
15 releasing the apparatus, and
fixing the apparatus to the vertebra.